MIDN Bird Vital Sign Protocol: Using the Global Positioning System (GPS)

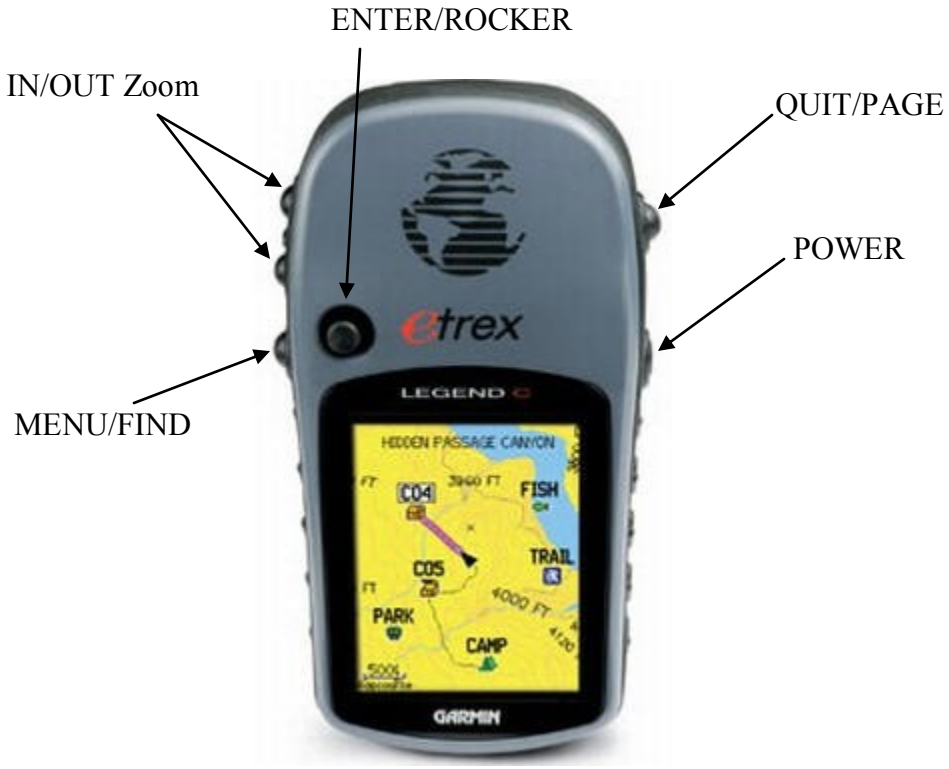
Version 1.10 (April 2009)

Overview

This Standard Operating Procedure was adapted from a SOP written by Shenandoah National Park for the Garmin 76CS. It explains the methods that all observers should follow to learn to use Global Positioning System (GPS) with the Garmin eTrex Vista HCX unit. GPS is used to help navigate to and locate pre-existing plots as well as document the location of new plots.

Suggested Reading

Garmin GPS eTrex Vista HCX Owner's Manual



Setting Up and Using the GPS Unit in the Field

GPS is used in the field to navigate to the predetermined location of new plots and to aid in the relocation of existing plots.

A. General Use

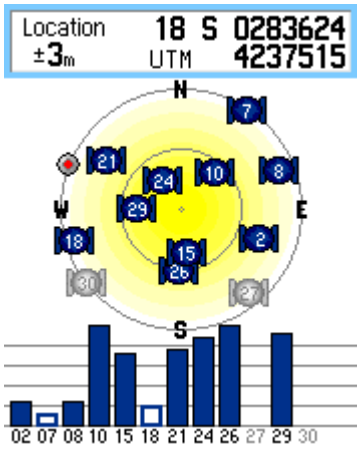
1. To turn the unit on, press and hold 'POWER' until you see a display.

2. If you have trouble seeing the display, you can press 'POWER' 2 or 3 times to increase the backlight.

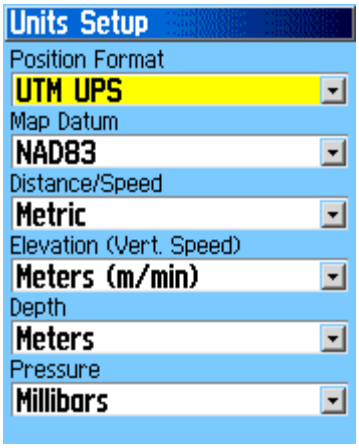
3. At any time you can press 'QUIT/PAGE' to cancel data entry or exit a page

B. Setup

1. As soon as you turn the unit on, it starts searching for satellites. Your GPS should immediately take you to the satellite page. If not, you can track the status of the satellites by pressing 'PAGE' until you reach the Satellite screen. The GPS is most accurate when it has at least four satellites and a 3D position. To check if the unit has a 3D position, press 'POWER' once. If the unit does have a 3D position, it will show 3D on the bottom left. The GPS can pick up satellites quickest when it is positioned horizontally (i.e. screen facing sky). The location of satellites in the sky changes from day to day and thus sometimes satellite reception is more difficult to achieve. Openings in forest canopy can increase the strength of satellite signals reaching the GPS unit.



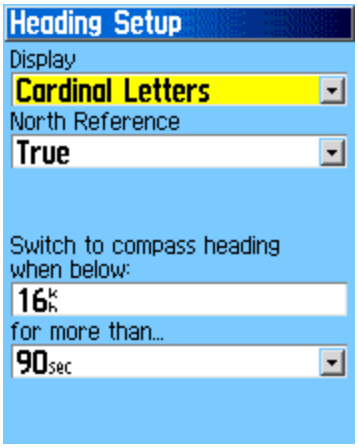
2. Once the receiver has at least four satellites, it will display the estimated accuracy on the upper left. The accuracy fluctuates as satellite signals are gained and lost. An accuracy of 10 m (30 feet) or better is desirable to accurately locate points.



3. Make sure the GPS is set to UTM NAD83.
   a. Go to the Main Menu by pressing 'MENU' twice.
   b. Toggle to 'Setup' and press 'ENTR'.
   c. Toggle to 'Units' and press 'ENTR'.
   d. Set the 'Position Format' to '**UTM UPS'** and the 'Map Datum' to '**NAD83'**. To change these, highlight the field press 'ENTR'. Then

toggle to the appropriate setting and press 'ENTR' again.

e. To get back to the Setup menu press 'QUIT'.

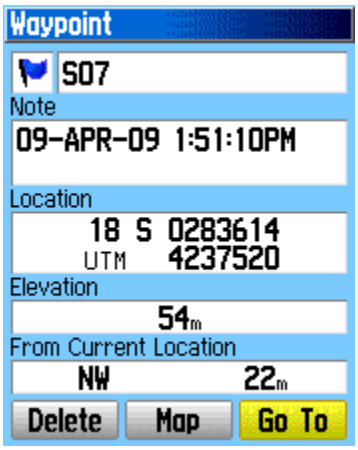


4. Make sure the GPS is set to True North.
   a. Toggle to 'Heading' on the Setup menu and press 'ENTR'.
   b. Set the 'North Reference' to '**True'**.

Note: These settings will be saved on the GPS and should not have to be re-entered each time the unit is turned on.

5. <u>Be sure to carry at least one full replacement of batteries</u> for the GPS receiver. Battery power can be checked by pressing 'POWER' once or by looking at the top right of the menu page

C. Navigating to a site

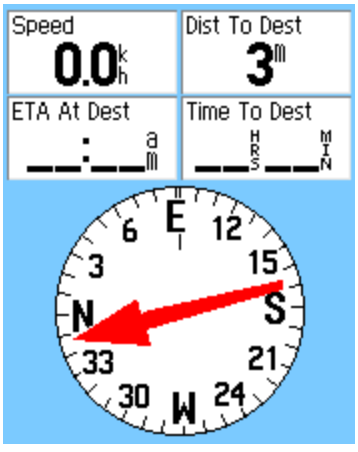


1. After the receiver is turned on and has adequate reception, press and hold the 'MENU/FIND' key to get to the 'Find' menu or press 'PAGE' until you get to the 'Find' menu.

2. Navigate to 'Waypoints' and press 'ENTR'.

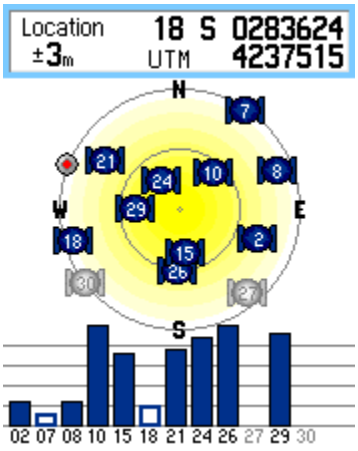
3. Use the keypad to navigate to the point you want or click 'QUIT' to scroll to the appropriate waypoint. To select the point press 'ENTR'.

4. The waypoint screen will give you detailed information about the waypoint including the point's coordinates and the distance to the point. 'Go To' should already be highlighted so press 'ENTR'.



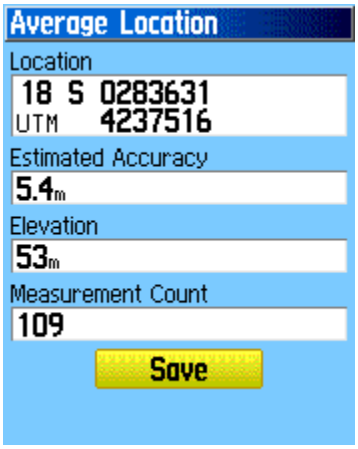
5. The GPS will take you to a map page showing your point. Press 'PAGE' to get to the compass page. The compass page will show you your speed, distance to destination, estimated time of arrival (ETA), and time to destination. The red arrow shows the direction you should navigate towards. *Note: The arrow is only accurate when you are moving.* As the distance to the waypoint decreases, the bearing and distance numbers will begin to jump around as the accuracy varies. As the waypoint nears, the use of a hand compass and measurement by pacing may help locate the point.

D. Reading your location



1. Navigate to the satellite page
2. On the top right you will see the coordinates
3. The first number is the grid number for the Easting (e.g. 0283624) the second is the grid number for the Northing (e.g. 4237515).
4. The number and letter above UTM (e.g. 18 and S) refer to the zone number for the coordinate system and can be ignored.

E. Taking a waypoint



1. From the main menu navigate to ‘Mark’
2. Change symbol
    a. Navigate to the first line where the symbol is located and click ‘ENTR
    b. Navigate to desired symbol and press ‘ENTR’
3. Change waypoint name (e.g. Car) by clicking the entry box and using the keypad
4. To mark waypoint click ‘Avg’ and wait till the Measurement Count field reaches at least 100
5. Click ‘Save’

Note: Be careful not to give the new waypoint the same name as one of the sites!

Change History

Original Version #	Date of Revision	Revised By	Changes	Justification	New Version #
Version 1.00	05-12-2009	SMW	Took out highway and map screens	Simplified navigation process for volunteers	Version1.10